

# NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

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## Miller leaves NIF for new post

George Miller, associate director of NIF Programs, has been appointed associate director-at-large. The announcement was made Thursday by Laboratory Director Michael Anastasio.

In his new position, Miller will assist the Laboratory director with a number of important strategic issues — including the development of the Lab's role in the broader national security community. While Miller will no longer have line responsibility for the NIF Directorate, he will continue to assist the project in its role as an important scientific capability for the nation, ensuring continued external support.

"The tremendous technical scope and importance of NIF to the nation and the Laboratory, has made the last six years some of the most rewarding in my career," Miller said. "It has been an opportunity that few have, even once in their careers. The incredible accomplishments that the NIF team has made are a credit to an extremely talented



George Miller



Ed Moses

and dedicated set of individuals. Ed Moses and the whole NIF team are just outstanding and I have learned a lot from them. I am honored and humbled to have been a part of this effort. But it is a crucial time for our Laboratory and for the nation and there are a

See MILLER, page 3

## Medical imaging technology changes disease detection and the practice of medicine

By Bob Hirschfeld

NEWSLINE STAFF WRITER

The practice of medicine is beginning to move from diagnosing and treating symptoms as they develop, to technologically aided detection of disease before symptoms develop.

That's within the mission of the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health.

Its director, Roderic Pettigrew, described the advances being made, during last week's Director's Distinguished Lecturer Series.

Pettigrew, who is a physician as well as a Ph.D. in applied radiation physics, said his institute's vision is to profoundly change health care by pushing the frontiers of technology to make "a reality of the possible."

One such technology includes cellular and molecular imaging, utilizing biosensors and micro or nanotechnology. New techniques can help target specific cells that require treatment, providing patients with individualized care, instead of the same treatment received by all other patients with that disease.

Pettigrew described how advances in

See DDLS page 8

## First look at gene expression in microbial community from extreme environment

By Charles Osolin

NEWSLINE STAFF WRITER

When humans gather in communities, they specialize and adapt. Farmers grow crops and raise animals for food based on the area's climate and soil. Builders fashion structures engineered to keep their inhabitants warm in winter and cool in summer. Physicians tend to the sick; police and firefighters protect the public.

Communities of microorganisms, researchers are finding, exhibit very similar behavior — genetically evolving, specializing and cooperating in ways that allow them to adapt to extreme conditions of temperature, acidity, toxicity and pressure.

In the first comprehensive study of gene expression in a microbial community from an "extreme" natural environment, scientists from Lawrence Livermore and Oak Ridge national laboratories, UC Berkeley, and Xavier University in

See MICROBES, page 5

## Bldg. 251 cleanup effort hits milestone

By Lynda Seaver

NEWSLINE STAFF WRITER

A nearly three-year effort to clean up Bldg. 251, the "Heavy Elements Facility," has reached a major milestone, thanks to what everyone involved in the project is calling a "textbook exercise in teamwork and cooperation."

Recently, the Safety and Environmental Protection Directorate celebrated meeting a major milestone in the transition of the building from a Category 2 Nuclear Facility to a Radiological Facility. The reduced category had a deadline of April 10 — the Lab met that milestone on April 8.

The project will save the Lab more than \$250 million and marks the first time that a facility with multiple glove boxes



From left: Joe Magana, Rob Vellinger and Jon Cunningham decontaminate and dismantle a blue cave enclosure in the Heavy Element Facility, Bldg. 251.

contaminated with such a high level of

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Navigating Vasco Road's corridor

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Plugged into electrical safety

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Employee town hall meetings

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## LAB COMMUNITY NEWS

### Weekly Calendar

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Monday  
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Ira Goldman of the International Atomic Energy Agency (IAEA) will give a Laboratory-wide talk entitled, “IAEA: Nuclear Security and Research

Reactors,” today at 1:30 p.m., in Bldg. 170, room 1091.

The IAEA has been involved for more than 20 years in supporting international nuclear non-proliferation efforts associated with reducing the amount of high-enriched uranium in international commerce, particularly associated with the research reactor fuel cycle. These efforts are now a key part in both IAEA and international efforts to strengthen nuclear security by eliminating nuclear material of security and potential terrorist concern. For information, contact the Center for Global Security Research, 2-6141.

Wednesday  
11

The Living Well Care Giver Workshop Series continues with “Legal Issues of Aging,” today at noon in the Bldg. 361 auditorium.

(Please note date change;

previously scheduled for May 4.) Workshop participants will increase their understanding of wills and trusts, power of attorney, long-term care and options for asset preservation. Workshop presenter, Robbie Smith, is an elder care consultant at the Older Adult Resource Center at El Camino Hospital, where she counsels families and individuals on issues related to aging. Smith will co-present with an elder care attorney.

The Living Well Care Giver Workshop Series is sponsored by the WorkLife Center, Health Services Department, Employee Assistance Program, and Concern: EAP. The workshops are open to employees; registration is not required. For more information, call 2-9543.

Thursday  
12

Employees interested in learning more about the **CalPERS Long-Term Care program** may attend a special presentation today in the Bldg. 361 auditorium at 1 p.m.

Long-term care provides the extended care needed because of a chronic illness, injury, or old age. Generally long-term care is not covered by health insurance, disability insurance or Medicare. The program is available to all California public employees and retirees, including University of California employees and their family members.

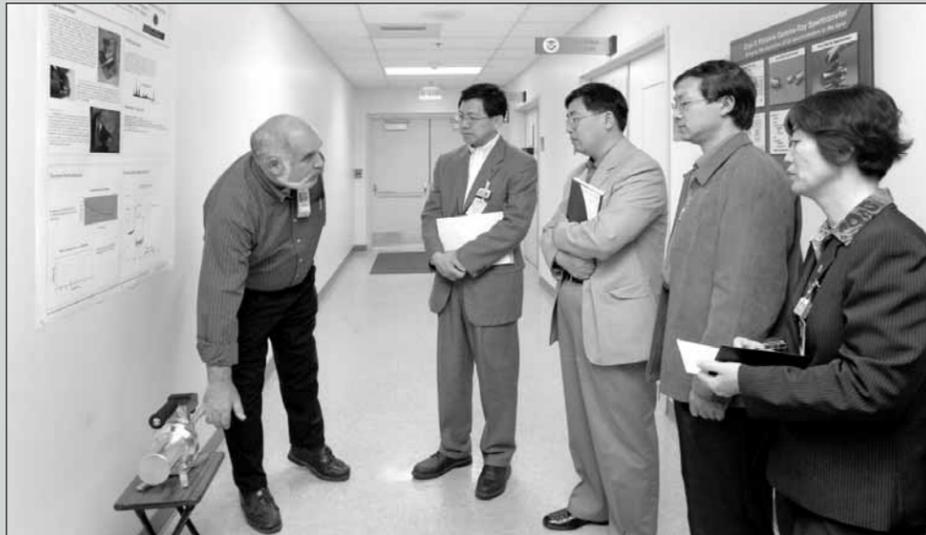
If you are interested in ordering an application kit or need more information, call 1-800-266-1050 or visit the CalPERS Website at [www.CalPERS.com](http://www.CalPERS.com).

Up  
&  
Coming

Saul Perlmutter will deliver a **Director’s Distinguished Lecturer Series** presentation, “Supernovae, Dark Energy, and the Accelerating Universe,” at 3:30 p.m.

Tuesday, May 17, in the Bldg. 123 auditorium. Perlmutter is a professor of physics at UC Berkeley and a senior scientist at Lawrence Berkeley National Laboratory.

### China visit



FRANK NUNEZ/TID

Lab physicist Norm Madden demonstrates the CryoFree radiation detection instrument to several members of a Chinese delegation that visited LLNL Monday. The nine-member delegation, including officials from the China Atomic Energy Authority, China National Nuclear Corporation and China Institute of Atomic Energy, listened to lectures and went on tours of the Laboratory’s Materials Protection, Control and Accounting. As a part of their visit, they went to the Radiation Detection Center and the National Atmospheric Release Advisory Center.

### RETIREES’ CORNER

**Hank** (Engineering, 1991) and **Marian McDonald** spent 17 days in Libya on a Cal BearTrek (California Alumni Association). They tramped through many ancient Greek and Roman ruins around Tripoli and Benghazi. They crossed the Sahara desert to see Neolithic cave paintings and much of the oldest rock art known. It’s hard to spend any money in Libya, as there is not much to buy except the ornate gold jewelry worn by every bride. To their surprise, you can drink the water and eat the food everywhere. Libya has no rivers or fresh water lakes, but they have built the great manmade river that pipes fresh water to the coastal regions from aquifers 1,200 miles away in the desert. It was a very physically demanding trip and at times very dusty. Visualize nine old Toyota Land Cruisers crossing the desert at 50 mph in an ever shifting formation so that no van gets the flying sand from another van.

**Bill Fritts** (Nondestructive Evaluation and Hazardous Waste, 1998) retired after 27 years and his wife, Karen, retired from Cal State Hayward. They moved to Temecula, Calif. on the Redhawk Golf Course, close to two of their three children, the third living in Oregon. After hip and spinal surgery, he has returned to golfing. With all of the metal, he says he is non-biodegradable and sure has fun at airport checkpoints.

They spent two weeks in southern Spain and Paris early this year — no crowds and the weather not too bad. With Malaga, Spain as their base, they visited the Alhambra in Granada and toured some of the “white” towns in the Andalusian hills around Malaga. It’s beautiful and without automobiles, like going back 100 years. Malaga is too busy and dirty. E-mail: [wfritts@adelphia.net](mailto:wfritts@adelphia.net)

**Cal** (Physics, 1993) and **Dixie Wood’s** (Engineering, 1993) travels: After walking through the mystic Vienna woods, they had dinner at a rebuilt castle that looked like it was out of a fairy tale. It had been severely damaged in a fire set by the original owner to get his picture in the paper. The new owner was an absolutely fascinating character who was doing all the rebuilding and decorating himself. He gave them a personal, private tour showing them how he had refinished and created molding and designs to embellish the castle, using much of the original wood. He raised hogs for ham, breeding a wild boar with a domesticated sow, to produce tasty ham for his restaurant. They saw his peach orchard grown to create a special peach

beverage. They saw beautiful antiques, including a clock that had belonged to Mozart. Many VIP guests had visited there, including John F. Kennedy, Queen Elizabeth and others. They saw his oversized garage and the airplane he was building.

#### Retiree events

The Travel Group will meet Tuesday, May 24, at 2 p.m. in the Community Room of the Livermore Police Building, 1110 S. Livermore Ave. The topic is “Southeast Asia with Vietnam” by **Arlene and Stephen Chin**.

The next retiree luncheon will be held at noon on Wednesday, May 18, at the Elks Lodge in Livermore, 940 Larkspur Drive. (Reservations: [www.llnlretirees.org](http://www.llnlretirees.org)). The speaker will be **Bob Schock** and his topic is “Energy: Is it Important?” There will be opportunity to ask any questions of Bob regarding energy, gas prices, etc.

Don’t forget the **retirees’ picnic** held on Wednesday, June 15, at noon at Ravenswood on South L St. (For reservations, visit the Web.)

Please send any input to Jane or Gus Olson. E-Mail: [AugustO@aol.com](mailto:AugustO@aol.com) or [JaneRubert@aol.com](mailto:JaneRubert@aol.com). Phone: (925) 443-4349, snail mail: 493 Joyce Street, Livermore, CA 94550.

### Newsline

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## NEWS OF NOTE



## Navigating the 'Vasco Road safety corridor'

By Officer Scott Yox

CALIFORNIA HIGHWAY PATROL

Unfortunately for some commuters, planned retirement may not be the reason for their last ride to work. And it can come sooner than people anticipate.

What recurs each workday, during the familiar trip in the family car to and from the workplace, can turn lethal at the drop of an accelerator pedal or a turn of the wheel.

Right in our own back yard we share the unpleasant distinction of commuting on a potentially dangerous strip of asphalt. I'm referring that section of Vasco Road that runs between Camino Diablo in Contra Costa County and Dalton Ave., just east of Interstate 580. Since the year 2000, 11 people have met their death on that stretch of roadway — seven in 2003 alone. In addition, more than 200 people have been injured there.

Routinely, vehicles travel this roadway in excess of the posted maximum 55 mph speed limit. The results from a head-on impact between two vehicles closing in excess of 110 mph are the kind of injuries that survivors don't walk away from. Complicating this severity is the remote location, where medical responders may be many miles and several minutes away.

As a California Highway Patrol officer,

my job is safety. I've pledged to do something to mitigate the carnage on Vasco Road, and I need the help of every Lab employee who drives that section of highway — whether it's daily or only occasionally.

The obvious solution would be to convert the roadway to a four-lane, divided highway. But that's a long-term solution that requires the necessary resources be allocated, the permits and approvals be acquired, and the extensive construction be completed.

In search of a more immediate remedy, this stretch of roadway has been termed the "Vasco Road safety corridor." As a result, we're deploying more officers to enforce traffic laws and aid motorists there. Because traffic safety is a team effort, we've formed a team to help save lives. In addition to our agency, some of the task force include: the California Office of Traffic Safety, the City of Brentwood, Contra Costa County,

Alameda County, East Contra Costa County Fire District, and the Laboratory, through its Traffic Safety Committee. Engineering solutions are being developed, and avenues for spreading our message are being explored.

Residents are invited to join us at our next planning meeting on Thursday, May 19, at 7 p.m. in the Brentwood Tech Center, 101 Sand Creek Rd. in Brentwood. If you are unable attend, but have comments or suggestions, call (925) 646-4980 to share your concerns.

And always, whenever you drive the Vasco Road safety corridor, remember these fundamental traffic safety rules. Be patient and don't speed. Pass with care, and only in passing zones. Never drink and drive. And

always buckle up. These apply as well to the other two-lane roads near the Laboratory, near your homes and across the state.



Scott Yox

## Tips for getting plugged into electrical safety

By Dan Benjamin

TID

Although five electrical shock cases occurred in 2004, the Laboratory avoided the types of serious electrical safety incidents experienced elsewhere in the Department of Energy complex last year, reports Dan Benjamin, Occupational Safety Section leader in Hazards Control.

"We have a good electrical safety record here, but we can make it even better by continuing to apply caution and by following safe practices in the way we work," Benjamin said.

With the start last Sunday of National Electrical Safety Month, he issued the following reminders to employees to help keep them electrically safe at work and home:

• **Don't touch:** Don't attempt to investigate or repair problems with electrical equipment or electrical circuits if you are not qualified. Leave electrical work to persons with the appropriate training and equipment.



Don't touch or go near downed power lines.

• **Deenergize:** This is a golden rule any time you might be exposed to energized or "live" electrical equipment or circuits. Always turn off and pull the plug on cord-connected equipment before attempting any repair or alteration. Follow lockout and tagout (LOTO) rules when controlling any potentially hazardous energy source including electrical energy. Remember LT3 = Lock/Tag/Test/Try. Always test for live energy before you touch.

• **Plan:** Plan your work so it can be performed safely.

• **Use PPE:** Wear proper personal protective equipment (PPE) appropriate for the exposure to electrical energy. An engineering control that eliminates the potential for contact with electricity is the best level of protection. Barriers or covers over energized parts are examples of engineering controls. Warning signs, such as labels and tags, are administrative controls that do not necessarily prevent possible contact. Written

procedures also are administrative controls. The use of PPE is the lowest level of protection, but necessary for some applications. Gloves, boots, hoods with face shields and flame and arc proof clothing are to be used when necessary. Be sure the PPE is rated for electrical work.

• **Use GFCIs:** Use ground fault circuit interrupter (GFCI) protection on all outdoor receptacles and receptacles near sources of water e.g., sinks, bathtubs, showers, pools, etc. GFCIs are intended to save persons' lives whereas circuit breakers are meant to save property.

• **Inspect equipment:** Maintain all electrically powered equipment in good condition. Constantly check for damaged equipment that might expose live conductors. Remove damaged equipment from service immediately.

• **Survey:** Watch out for embedded or hidden equipment, pipelines and electrical conductors. Before you drill, cut, saw, dig, etc., whether you are penetrating walls, floors, ceilings, roofs, sidewalks, streets, or soil, have a survey completed for embedded utilities or equipment. Find out what is on the other side of the wall.

### MILLER

Continued from page 1

number of strategic issues that I look forward to working on."

"George has led the NIF team to a number of major successes," Anastasio said. "I applaud his leadership and commitment to the project and the directorate and his dedication to the Laboratory. I am pleased he will be joining me in the director's office and helping our Laboratory with a number

of important projects."

Miller joined the Lab in 1972 as a weapons design physicist in A-Division. His career has spanned numerous management positions at the Laboratory, including project leader, division leader and deputy associate director. Since 1985, Miller has held associate director positions at the Laboratory, including Nuclear Design, Defense Systems, Defense and Nuclear Technologies, National Security, and currently National Ignition Facility Programs. In 1989, he also held a one-year assignment with DOE

headquarters, serving as special scientific adviser on weapons activities to the Secretary of Energy.

Miller begins his new assignment immediately. Also effective immediately, Edward Moses will become the acting associate director for NIF Programs. The position will be posted.

"I appreciate Ed's willingness to take on this challenge," Anastasio said. "I am confident that with the strong support of the Laboratory, the NIF team will continue its successes and achieve project completion and our ignition goal in 2010."



## NEWS YOU CAN USE

# Talk focuses on applying new ergonomics research

**Dale Sprouse**

TID

Nationally known ergonomist Jerome Congleton, a Texas A&M professor, will visit the Laboratory May 16 to discuss new research findings in the fields of office and industrial ergonomics and how they can be applied in the workplace to minimize injuries and maximize productivity.

The talk in the Bldg. 123 auditorium will run from 10 – 11:30 a.m.

Melanie Alexandre, the Laboratory's ergonomics subject matter expert, is encouraging attendance by ergonomic evaluators, safety personnel and management and non-management employees interested in better understanding ergonomics.

Congleton is the inventor of the Neutral

Posture ergonomics chair. The invention was an outgrowth of research Congleton conducted for NASA related to the work of astronauts in a weightless environment. The work led him to develop the concept of the "neutral body position."

His primary research interests are seated research, workplace design, prevention and control of back and carpal tunnel syndrome injuries, worker physiology and ergonomics.

In addition to being a member of the Occupational Environmental Health Program at Texas A&M University, Congleton is co-director of the National Science Foundation's Industry/University Cooperative Research Center in Ergonomics. He also is a consultant for research and development at Neutral Posture Ergonomics in Bryan, Texas.

Congleton is a past co-director of the Ergonomics and Work Measurement Division of the Industrial Ergonomics Foundation. He previously worked at Alcoa for eight years as an industrial engineer and safety manager, focusing on work posture and material handling issues. He also has worked as a consultant to UPS.

He holds a bachelor's degree in industrial engineering from the University of Evansville in Indiana, a master's degree in management from the University of Arkansas, and a Ph.D. in industrial engineering from Texas Tech University, where his research emphasis was in ergonomics/human factors. His 1983 doctoral dissertation was titled, "The Design and Evaluation of the Neutral Posture Chair."

## Technical Meeting Calendar

Friday  
**6**

### INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS

"Nearby Galaxies as Revealed by the Spitzer Space Telescope," by Robert

Kennicutt, Steward Observatory, University of Arizona. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa A. Lopez, 3-0250.

Monday  
**9**

### CENTER FOR APPLIED SCIENTIFIC COMPUTING (CASC) / INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)

"High-performance, Power-aware Distributed Computing," by Kirk W. Cameron, University of South Carolina, 10 a.m., Bldg. 451, room 1025, White Room. For more information, see URL (<http://www.llnl.gov/casc/calendar.shtml>) Property protection area. Foreign national temporary building access procedures apply. Contact: Karen Karavanic (CASC/ISCR) 3-4480 or Erica Dannenberg 3-2167.

### PHYSICS & ADVANCED TECHNOLOGIES DIRECTORATE-WIDE SEMINAR

"Probing Hydrogen Bonding in Water and Ice using X-rays," by Anders Nilsson, Stanford Synchrotron Radiation Laboratory-Stanford University and Fysikum, Stockholm University, Sweden. 10 a.m., Trailer 2128, room 1000. Common use facility. Foreign nationals may attend. Contact: Giulia Galli, 3-4223, and Alan Wootton, 2-6533.

### CENTER FOR GLOBAL SECURITY RESEARCH

"IAEA: Nuclear Security and Research Reactors," by Ira Goldman, International Atomic Energy Agency. 1:30 p.m., Bldg. 170, room 1091. Property protection area. Foreign national temporary building access procedures apply. Contact: Karen Kimball, or Bob Schock, 2-6141.

### ADMINISTRATIVE INFORMATION SERVICES

"How to Work with Oracle's Support and Services Groups," by June Futamase, Oracle Enterprise Services Delivery Manager, MyLan Bui-Do, Oracle Premium Onsite Assisted Services Manager. 10 a.m., Bldg. 361, room 1140. Learn how to work effectively with Oracle support, Metalink update; how to leverage Oracle's premium services/on-site support. Common use facility. Foreign nationals may attend. Contact: Larry Snyder, 3-0121.

### CHEMICAL BIOLOGY AND NUCLEAR SCIENCE DIVISION/BIOSECURITY & NANOSCIENCES LABORATORY

"Elements of Distinction for Spore Bioforensics," by Peter Weber, chemist, Chemical and Isotopic Signatures Group/Chemistry and Materials Science Directorate. 2 p.m., Bldg. 151, room 1209, Stevenson Room. Contact: Ted Tarasow, 3-7241, or Katie Thomas, 2-7903.

Tuesday  
**10**

### CENTER FOR APPLIED SCIENTIFIC COMPUTING (CASC) / INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)

"OpenMP: Where Are We Headed?," by Barbara M. Chapman, University of Houston, 10 a.m., Bldg. 451, room 1025, White Room. For more information, see URL (<http://www.llnl.gov/casc/calendar.shtml>). Property protection area. Foreign national temporary building access procedures apply. Contact: Bronis de Supinski (CASC) 2-1062 or Erica Dannenberg 3-2167.

Wednesday  
**11**

### CHEMICAL BIOLOGY & NUCLEAR SCIENCE DIVISION/CHEMISTRY & MATERIALS SCIENCE DIRECTORATE

Applicant Seminar. "Biomolecular

Assembly of Gold Nanocrystals," Christine Micheel, University of California, Berkeley. 2 p.m., Bldg. 151, room 1209. Foreign nationals may attend if appropriate security plan is on file, which includes B151. Contacts: Jeffrey Tok, 3-1549, or Eryn Davis, 2-0475.

Thursday  
**12**

### CHEMISTRY AND MATERIALS SCIENCE/MSTD

"Special Lecture Series on Classical Nucleation Theory: Introduction and New Results (Part 1)," by John Neu,

University of California Berkeley, 10:30 a.m., Bldg. 155, room 1101, auditorium. Property protection area. Foreign national temporary building access procedures apply. Contact: Kenneth Kim, 3-8567, or Linda Jones, 3-8839.

Friday  
**13**

### CHEMISTRY AND MATERIALS SCIENCE/MSTD

"Special Lecture Series on Classical Nucleation Theory: Introduction and New Results (Part 2)," by Joseph Farjoun,

University of California Berkeley, 10:30 a.m., Bldg. 155, room 1101, auditorium. Property protection area. Foreign national temporary building access procedures apply. Contact: Kenneth Kim, 3-8567 or Linda Jones, 3-8839.

### INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"Is Anybody Out There? IR, Visible & Radio SETI with Five Million SETI@home Volunteers," by Dan Werthimer, U.C. Berkeley. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa Lopez, 3-0250.

**The deadline for the next Technical Meeting Calendar is noon, Wednesday.**

## AROUND THE LAB



### MICROBES

Continued from page 1

New Orleans have identified more than 2,000 proteins produced by five key species in the community. More than 500 of the proteins — chains of amino acids linked together in an order specified by a gene's DNA sequence — appear to be unique to the community, which thrives in hot, highly acidic conditions in an Environmental Protection Agency Superfund site at an abandoned mine at Iron Mountain, Calif. A report on the research, "Community Proteomics of a Natural Microbial Biofilm," appeared online Thursday in *Science Express*.

"This is the first effort to accumulate information on genes that are expressed within a natural community, and one that has a major environmental impact," said Michael Thelen, a protein biochemist in the Microbial Systems Division of the Laboratory's Biosciences Directorate. "One of the most interesting things we found is that there are large numbers of proteins that don't resemble any other proteins we know about. Many are enzymes that function to maintain the correct structure of other proteins that are exposed to the unusually harsh acidic environment."

The Iron Mountain microbial community, which consists of bacteria and archaea, has been under study for nine years by a research team lead by Jill Banfield, professor of earth and planetary science and of environmental science, policy and management at UC Berkeley. Last year, it became the first microbial community characterized at the genetic level through large-scale genome sequencing at the DOE Joint Genome Institute in Walnut Creek, Calif.

"This work illustrates the power of the genome sequencing done at the Department of Energy's Joint Genome Institute to contribute to understanding the microbiological communities living at contaminated sites," said Raymond Orbach, director of DOE's Office of Science.



CLARA CHAN/UC BERKELEY

**Acidophilic microbes thrive in this biofilm growing inside an abandoned mine at Iron Mountain, Calif. The microbes' metabolism creates highly toxic acid mine drainage, a major environmental problem associated with the mining of coal and uranium.**

"Now scientists can investigate not only the 'community genome,' but also the resulting 'community proteome' for enzymes and pathways that can help clean up some of the worst environmental sites in the nation. This underscores the value of basic research carried out by the DOE Genomics: GTL Program that can develop novel approaches and solutions to national challenges."

The microorganisms, known as "extremophiles" for their affinity to harsh environments, grow as a biofilm at the Richmond Mine near Redding in Northern California. The complex interaction of microbes, water and exposed ore at the mine has generated dangerously high levels of

sulfuric acid and toxic heavy metals, known as acid mine drainage.

The microbes are densely packed in the pink biofilm, which is just a few millimeters thick and floats on the surface of the mine water. The biofilm is a self-sustaining system, using carbon and nitrogen from the atmosphere within the mine and deriving energy from iron that has been leached out of the iron sulfide rock, also known as pyrite or "fool's gold."

The researchers used an analytical technique called mass spectrometry to identify the proteins present in the biofilm, then correlated them with genes from each of the major organisms identified in the earlier genomic study. They found that many community functions, such as nitrogen fixation, are handled by specialized microbes.

"We found a cytochrome protein made in abundance by one bacterial member of the community, *Leptospirillum* Group II, that's a key factor connecting the biology with the environmental surroundings — it's likely the first step in iron oxidation through an electron capture by the cytochrome," Thelen said. "We also found that a different bacterium, *Leptospirillum* Group III, apparently makes more of the polysaccharide that is needed as a matrix or housing material for the biofilm community."

Thelen said researchers still have much to learn about the molecular mechanisms involved in assembling microbial communities, the partitioning of metabolic tasks within the communities, and how carbon, nitrogen and energy resources are allocated into metabolic pathways. The information could ultimately be useful for understanding the functioning of biofilms in a variety of environments, including some with implications for human health.

"These organisms have evolved to adapt to their specific environment," Thelen said, "and as they invent new methods for doing this, they come up with genes that are different enough from other organisms to enable them to survive in that particular niche. We just have started to find how many of these genes are not understood. It's just now coming to light how much of the genome is still a mystery."

## Celebrating Cinco de Mayo



LLNL's Amigos Unidos Hispanic Networking Group held its annual Cinco de Mayo celebration Wednesday on the lawn area near the former pool. Entertainment was provided by Tribu, a group that plays traditional Aztec musical instruments. The event was co-sponsored by Computation, Engineering and the Worklife Center.

Photos by Jacqueline McBride  
Newsline

## Rapid checkout arrives at the cafes for ATM, credit card purchases

On Monday, May 9, the Business Services Department's Food Services Group and Eurest Dining Service will introduce signature free rapid checkout when you use your ATM or credit card for food purchases at the West and Central cafes.



In an effort to reduce your time at the checkout, the Food Services Group has eliminated the signature line and upgraded the software and hardware for the Point of Sale System (POS). The benefits in upgrading the POS system is that your ATM or credit card transactions will only take a couple of seconds to obtain an electronic bank approval versus the old system which could take up to a minute.

Stop by the West or Central cafe for a breakfast meeting, lunch or a snack and don't forget to bring your ATM or credit card.



## CLASSIFIED ADS

See complete classified ad listings at  
<https://www.ais.llnl.gov/newsline/ads/>

### AUTOMOBILES

Grandma's car is for sale, 1983 Honda Accord Hatchback LX, original owner, 88K original miles, current tags, good condition, Carfax report-\$1295 209-640-7495

1983 - 33ft. Allegro motorhome. Great condition! 454, T6, 7.0 Onan, runs great, 84K orig miles, Queen bed. Extra seating, built in BBQ! \$12,500 OBO. 925-455-0477

1996 - Geo Tracker, 4 dr, 129k mls, 4x4, auto, a/c, pw/pdl/cc, 4cyl-16 valve, 25mpg. \$3700 925-516-1616

1997 - Range Rover, Loaded, Good condition, 70,500 miles, \$12,500 925-449-7782

2000 - Mercedes-Benz C230 Kompressor. Fully loaded, excellent condition. \$16,900, OBO. 925-550-5352

1987 - Toyota Corolla 4 doors, automatic, 4cyl. Runs good. \$880 OBO 925-846-8917

1968 - Collectors! SAAB model 95stawag, V4 very good condition, running, needs paint, upholstery, minor body work, extra parts \$3200obo 925-216-2512

1978 - 1978 BMW 318i, runs good, looks good, need clutch and a little TLC \$1500.00 209-834-1428

2002 - TOYOTA SEQUOIA 4x4, silver, 40kmi, 7passengers Loaded, leather, dvd, tow, like new, \$29950.00, obo, 929-556-1780

1994 - Honda Passport 4-wheel drive Auto trans. air, tow package, new tires. KBB \$4k Price \$3200. Has 140k mi. have all oil change records. 925-443-3467

1988 - Pontiac Grand Prix LE coupe 2 door original owner 111,000 miles, \$1,000. 925-447-5459

Want a convertible (open top) and driver for a wedding June 4 for 1 hr in Livermore. Prefer years 1950s with big fins or 1920s and 1930s. 925-447-8804

1994 - Ford Bronco XLT, 4x4, New interior, trans, brakes. Only 95K miles. \$5500. 209-472-7315

### AUTOMOBILE ACCESSORIES

White camper shell, fits Chevy or Ford with 6 1/2 foot bed. \$400 209-483-8719

Comprehensive service manuals for 1988 Toyota Camry and 1988 Honda Civic. \$5 each 925-901-0612

Set of 4 Bridgestone BT70S 185/70R-14. Like new, used less than 500 miles. \$400 new, yours for \$200. 925-934-0549

Overhead CB/radio console for Jeep. Made by Tuffy Security. \$100.00. 209-823-5845

### BICYCLES

Electric Motor for Bicycle, \$80 Rack mounted electric motor, throttle driven. Fits most bikes. Speed 16mph, range 10 miles. 510-530-1884

2002 Lemond Zurich road bike, Ultegra Comps, Mavic pedals, chromoly steel frame, new tires, new seat, beautiful. Asking \$750. 925-321-3600

Burley two person bike trailer. Very Good condition. \$150 obo. 925-606-0755

Lemond-Nevada City, 24 speed, 61cm frame, like new, \$750 original- asking \$400 obo. 925-828-1969

### BOATS

1986 Ski Centurian, 20 ft bowrider, 351 ci Commander (Ford) engine direct drive, wakeboard pylon, barefoot boom, dual axle trailer. \$6500 OBO 925-443-7704

1995 ChrisCraft 19 ft open bow ski boat, V8, EFI, I/O, Bimini top, Wakeboard tower, CD Player, Tandem trailer, Lots of Toys, Great Condition \$12,000 510-538-7444

Sailboat, 19 ft 6 inch Caledonia Yawl, Trailer, Nissan 5 HP motor included, Always garaged, \$3000.00, call evenings. 925-373-9684

Alum. Fishing Boat, 14ft, 15hp Honda 4cy, 7.5hp Merc 2cy, elec. trolling motor, custom trailer (16in wheels), lots of extras! \$2,499. 925-371-1854

1995 Skeeter 18 foot bass boat. 175 merc. New trolling motor and stainless prop. Always covered or garaged. Beautiful boat. \$9000. 209-824-1256 209-824-1256

### ELECTRONIC EQUIPMENT

Plam Tungsten|E Handheld. Bought late 2004. Pretty much never used. Great little color screen device. \$147/OBO. 925-461-5093

Mitsubishi 35 inch TV console with walnut cabinet, picture-in-picture, cable-ready tuner, top-of-the-line unit, fantastic picture. \$225 415-543-3643

Dell color 19-inch CRT monitor. Screen controls (brightness, contrast, etc.) not functional; otherwise in excellent condition. \$20 OBO. 925-449-4296

HP COLOR printer, hardly used. 35.00. 510-537-7222

### GIVEAWAY

Free Body Vision weight machine with leg and arm adapters, weights and bars. Must take all by 5/25, need the space. 925-354-6823

Tiles (Terra cotta with a glaze) about 3 boxes. 1 child bike with training wheels, 2 adult bikes. 925-449-6048

Firewood, Approx. one pickup load. Mostly two by four pieces 12 to 18 inches long. Take it all. Scanner, flat bed, Scanmaker II SP for PC or Mac. 925-447-4841

Free table. Rectangular, all wood. Perfect for breakfast room. Seats four to six. Comes with bench and two chairs. 925-846-7329

Basketball stand. Needs net. You pick up. 925-443-8889

Free Spa. 8 ft octagon 220V. Works fine, cover in good condition. You haul away. Call evenings 925-820-0679

Food Dehydrator, custom wood built, five trays, very good condition, great for fruit and jerky, 925-443-7531

Free! white plastic chaise

lounge, child desk and chair, sm & lg umbrella stands (need paint), rotary manual lawn mower 925-454-5305

Gas bbq, w/tank approx 12x18in grill size. metal lounge chair, both good cond. 925-980-9336

### HOUSEHOLD

Toys - Some still in boxes. Dragon Fly RC Car (in box). Hooked on Phonics (paid over \$100) sell for \$50 925-449-6048

Crib, White in Excellent Condition 50.00 Folding Ladder, 12 Foot 30.00 Dining Table with four chairs 40.00 Walker 5.00 Box Fan 5.00 925-447-4841

Kenmore High Eff. front loading washer, 2-yrs. old, standard top control panel to match your existing dryer, good operating condition. 400.00 925-519-0510

Couch, flower-pattern design. Good condition. \$100. Matching loveseat possibly available. 925-513-4767

Oversized chair and love seat. White with embroidered pattern. Great Condition. Pictures available, \$175 OBO. 925-964-0534

Bar stools, oak w/swivel seats. 3 for \$85. Media storage cabinet, oak, rotating w/glass doors on 2 sides. \$50. 925-606-0260

Solid oak roll top desk w/locking top. Dark wood. Excellent condition, not a scratch \$500 925-516-8339

Lawn mower, 4HP gas, 22-inch, good shape; Craftsman 18-inch gas weed-whacker; \$40 each 925-443-9594

HON vertical 2-drawer file cabinet, light gray. Excellent condition. \$30 OBO. 925-449-4296

4-drawer chest of drawers. Medium wood w/ dark wood grain and black inlaid top. Good condition, \$40. 925-454-5305

Couch/Love Seat for sale, light multi colors w/blue, \$300 or best offer, must sale, in Ripon area, call after 5:30pm 925-447-4898

### LOST & FOUND

Found 4/22 Rx Glasses @ Guidestar tent/bus stop (B482 & inner loop road). Blk GUESS frames. In good shape. 925-323-8223

### MISCELLANEOUS

Radial Arm Saw, 8 inch Craftsman, wheel mounted, minimum use \$100 925-443-2057

SALE - Longaberger products at or below retail. I am retiring from Longaberger. Call for details. 925-449-6048

Garage Sale Saturday from 9am to 2pm @ 1351 Melanie Way, Livermore - Lots of baby clothes, toys & maternity clothes. 925-455-6912

Star Wars Trilogy VHS; Star Wars, Empire Strikes Back, Return of the Jedi. Watched once. Nice spare for kids or kids at heart. \$15. 925-634-1110

Radial Arm Saw, Craftsman 10 inch on metal roll around stand. Many Accessories in very good condition \$150.00 925-447-4841

Radial Arm Saw, Planer, Routers, Drills, Sanders, Skil Saw, Clamps, Planes, Scroll Saw, other tools evenings 925-373-9684

Oakland Athletics tickets 8. Section 239 Plaza level w/parking pass. May 31, Tampa Bay. \$159 value. \$100 925-516-8339

Paul McCartney tickets November 7, 2005 San Jose - Section 202, Row 14, seats 1-4, price \$405.00, Section 117, Row 20 seats 11 & 12, price \$296.00. 925-634-8173

Firesafe locker style used at Llnl 2 door under-counter type. (new over 400.00) well used \$45.00 can deliver to Llnl or locally. 209-526-6272

Tiny Tikes white/chalk board easel w/ trays. Holds large paper for drawing. Like new. \$60 when new, asking \$25. 925-454-5305

Wood Lathe (Old) \$50/obo 925-447-9162

golden west pool table 3 piece slate, oak with leather pockets like new felt all accy. included \$750.00 o.b.o. call anytime before 8:00 p.m. 209-574-0939

1942 Case wheel tractor and misc. tractor attachments for sale, Loader with bucket. Call for info, BO. 925-449-5734

### MOTORCYCLES

1998 - Ducati ST-2. 17K. 1st owner. Never been down. Bags and mounts included (not installed on bike now) New Michelins. \$5400.00 205-830-4316

2000 - Honda XR70R Great Condition. Wonderful for children. \$900.00 209-835-1829

2004 - Honda Silverwing Scooter. Less than 500 miles. Freeway legal. Must sell \$6,800.00 Call after 2pm 925-447-5525

2001 - Harley-Davidson Heritage Softail 14.5k miles, injected, Stage 1, counterbalanced, many extras. looks/runs great. \$17,800. 925-736-4109

1997 - Suzuki GSXR 600, good condition, Yoshimura pipe, \$3,000. 209-834-0798

### MUSIC INSTRUMENTS

LLESA Dance Band needs a tenor sax player, preferably someone who can play lead. Contact Bob Olness. 925-443-2245

61 GIBSON SG Les Paul Custom. Aged white, aged nickel PAFs. FLAWLESS cond. This is the one you want. \$2250/offer 209-480-4963

### PETS & SUPPLIES

Tack Box - Horse Show Model, Custom made Wood, brass fittings, wheels. Needs paint. Yours if picked up. 925-560-9657

Free bird cage. Oak and mesh. Cage volume is about 3ftH by 3ftW by 1.5ftD. Pedestal with storage. Total height 5ft. 925-606-9575

2 Free Rats, 5 months old, cage and supplies. Gentle males need more attention that we can provide. They sleep at night. 925-443-7729

Horses for sale, registered Arabian show stud, mare & Quarter horses. Misc. tack for

sale. Call for info. Exp. riders. 925 449-5734 925-449-5734

### RECREATION EQUIPMENT

Tour Junior Golf Clubs, Left Handed, Excellent Condition used twice, Bag, Driver, 5, 7 & 9 Irons, SW, Putter. \$75.00 OBO 925-785-2371

2003 Specialized Rockhopper MTN bike, fully suspended, disk brakes, Shimano Deore components, rarely ridden. Excellent condition. Asking \$750. 925-321-3600

Health Rider. Good condition. \$25. 925-606-0260

Ladies Golf Clubs Golden Bear 11 piece set w/bag. ~6yrs old, used very little, good condition. \$100.00 209-629-4983

pool table like new felt all accy 3piece slate oak with leather pockets make is golden west. \$750.00 o.b.o. call anytime before 8:00 p.m. 209-574-0939

1995 Kawasaki 550sx and 440sx Jet Skis on dual trailer. Very Good Condition. Low Hours, New Batteries. \$1800.00. 209-983-8886

### RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

San Jose - Seeking carpool partner from San Jose, on AWS 9/80 408-268-7924, ext. 2-9107

Orinda - Lamorinda carpool seeks 4th driver/rider. Meets near Hghwy 24 and St. Stephens. Lab hours 8am-4:45pm. 925-253-0498, ext. 2-9823

Oakland/Montclair - has openings. Departs Montclair 7:30 a.m.; departs LLNL 5:00 p.m. For more info call Ron, 510-530-1289, ext. 2-9831

Lafayette - LaMorinda Vanpool (also WALNUT CREEK stop at Rudgear commuter lot): reclining seats, reading lights, 7:45-4:45, \$105/mo (pretax reduction available) 925-943-6701, ext. 2-3005

Clayton/Concord/WC/PH - Car pool looking for 2 rider/drivers; leave Rudgear Road P&R @ 6:15; Start wk @ 7:00, Return from Lab @ 4:00; return to P&R @ 4:40. 925-672-6677, ext. 3-2153

### SERVICES

House Cleaning Services, Good References, Free Estimates!!! Call Now 209-833-6467

Hauling and/or Lawn Care Service. Brian 925-373-9540

Excellent and affordable daycare, ages infant up to 4 years old. Close to Lab. 925-454-0410

Custom designed and built decks. Permittable plans drawn. Quality Construction. Reasonable rates. Surving Pleasanton to Modesto. 510-506-1728

INTERIOR, EXTERIOR PAINTING Low season rates, free estimates. Its a good time for painting before the hot weather. 510-537-7222

Cleaning Lady - Honest, dependable and reasonable rates. Free estimates. 925-829-2625

# Aurora town hall meetings provide employee forum

What will the Laboratory look like in the year 2025? What will be its missions? Who are the sponsors? How will LLNL's operations change?

Employees will be able to provide their input to these issues and more through a series of "town" meetings provided by each of the strategy teams that make up Aurora: LLNL's Vision for 2025.

The project kicked off a week ago with five select teams: Missions & Sponsors, Science & Technology, Operations & Infrastructure, Partnerships & Relationships, and Workforce & Work Environment.

While a Website is available through the LLNL Portal (<https://www-r.llnl.gov>) for all employees to provide input, town meetings also have been scheduled so all employees may engage in discussions with team members regarding the various issues.

"Since this project began, we've received lots of great ideas and a lot of questions," said Cherry Murray, deputy director of Science & Technology and one of the chairs of Aurora. "The town meetings are the perfect venue for addressing these issues and answering questions."

"I encourage all employees to attend any or all of these meetings and help shape our Laboratory's



LLNL'S VISION FOR 2025

future."

Aurora is the selected name for the process to develop strategic initiatives given the senior management council's "vision" of where the Lab should be in 2025. Just as Aurora, the Roman goddess of the dawn, helped to bring in the "new day," it is expected that the vision process will provide long-range clarity and strategic direction for LLNL.

Working with the strategy teams' associate director leads, team members will identify and develop key initiatives, based on group discussion and input from employees, which the Lab can start now to move toward the "vision."

Team members were selected via nominations from each associate director, as well as the Director's Office, with a goal of balancing across the Lab multiple dimensions, including years of

experience, directorate representations and a mix of skills and backgrounds. For a complete list of team members, see the accompanying charts.

Town hall meetings for each group are as follows:

The Workforce & Work Environment task force will hold its brown-bag lunch/town hall meeting on May 12, 11:30 a.m. to 1 p.m. in the Bldg. 123 auditorium.

The Partnerships & Relationships task force will hold its brown-bag lunch/town hall meeting on May 16, noon to 1 p.m. in the Bldg. 123 auditorium.

The Operations & Infrastructure task force will hold its brown bag lunch/town hall meeting on May 17, noon to 1 p.m. in the Bldg 123 auditorium.

The Science and Technology task force will hold its brown-bag lunch/town hall meeting on May 26, noon to 1 p.m. in the Bldg. 155 auditorium.

The Missions & Sponsors task force brown bag lunch/town hall meeting will soon be announced.

More information on this will appear in *Newsline*, *NewsOnLine* and *MyLLNL*.

Missions & Sponsors Team		Operations & Infrastructure Team		Partnerships & Relationships Team		Science & Technology Team		Workforce & Work Environment Team	
<b>Goodwin, Bruce*</b>	DNT	<b>Leary, Dave*</b>	LS	<b>Crawford, Dona*</b>	Comp.	<b>Goldstein, Bill*</b>	PAT	<b>Tulk, Jan*</b>	AHRD
<b>Long, Jane*</b>	E&E	<b>Patterson, Steve*</b>	Eng.	<b>Bookless, Bill*</b>	SEP	<b>Branscomb, Elbert*</b>	Bio	<b>Diaz de la Rubia, Tomas*</b>	CMS
<b>Cochran, Steve*</b>	NAI	<b>Rakow, Linda*</b>	CFO	Sweeney, Jenn	EODD	<b>Miller, George*</b>	NIF	Carvalho, Donna	EODD
<b>Juzaitis, Ray*</b>	NAI	Aaron, Cathy	LS	Baker, Kathy	CFO	Fulton-Smith, Trudy	EODD	Allen, Rob	Comp.
Holman, Mary Anne	EODD	Mosby, Michael	LS	Becker, Richard	Eng.	Bibeau, Camille	NIF	Berge, Pat	E&E
Ashby, Steve	Comp.	Atkins-Duffin, Cindy	E&E	Bonanno, Gina	NIF	Bradley, John	PAT	Bergman, Michele	LS
Barty, Chris	NIF	Bowers, Joel	Eng.	Dickinson, Paul	DO	Brennan, Jasna	Comp	Cantwell, Betsy	ENG
Brase, Jim	PAT	Breyer, Renee	AHRD	Galli, Giulia	PAT	Budil, Kim	CMS	Coleman, Sabre	SEP
Dehghani, Moe	Eng.	Correll, Don	PAT	Lamarre, Albert	SEP	Carlsen, Tina	SEP	Craft-Rogers, K.	AHRD
Dempsey, Pat	LS	Damkroger, Trish	Comp.	Mailhiot, Christian	CMS	deYoreo, Jim	CMS	D'haeseleer, Patrik	Bio.
Elder, Melanie	NAI	Dreger, Kurt	SEP	McKinley, Karena	AHRD	Diachin, Lori	Comp	Fox, Glenn	CMS
Freidmann, Julio	E&E	Hsing, Warren	NIF	McMillan, Charlie	DNT	Fitch, Pat	NAI	Gonzalez, Marina	AHRD
Galkowski, Joe	Eng.	Kammeraad, Judy	CMS	Moses, Ed	NIF	Graziani, Frank	DNT	Gorsuch, Kay	SEP
Gard, Eric	Bio.	Knapp, Bret	Eng/DNT	Newmark, Robin	E&E	Gilliom, Laura	DO	Herweg, Greg	Comp.
Heeter, Bob	PAT	Koenig, John	AHRD	Orme, Christine	CMS	Hammel, Bruce	NIF	Jernigan, Tammy	PAT
Norman, Greg	CFO	Luu, Ken	Eng.	Ramponi, Al	Bio.	Hartouni, Ed	PAT	Kissel, Jeanne	CFO
Robinson, Denise	DO	Neves, Ken	DO	Schumacher, Bob	LS	Hurricane, Omar	DNT	Lateiner, Manny	SEP
Rotman, Doug	E&E	Peterson, Barbara	NAI	Stoutland, Page	NAI	Ireland, Sheryl	CFO	Nastrom, John	E&E
Seaver, Lynda	PAO	Prosnitz, Don	NAI	Sugiyama, Gayle	E&E	Knezovich, John	E&E	Odell, Gaby	DO
Simonson, Greg	NAI	Schwartz, Ron	DO	Wan, Alan	DNT	Lightstone, Felice	Bio	Perry, Brenda	AHRD
Smith, Tommy	AHRD	Schwoegler, David	PAO	Williams, Dean	Comp.	McCallen, Dave	Eng	Pilkington, Desmond	DNT
Stubbs, Lisa	Bio.	Sedlacek, Larry	DNT	Wilson, Scott	PAO	Quinn, Terri	Comp	Power, Gary	Eng.
Terminello, Lou	CMS	Trebes, Jim	PAT	Yamamoto, Bob	Eng.	Strauch, Mark	LS	Souza, Lori	CMS
Van Bibber, Karl	PAT	Verdon, Joyce	LS			Wampler, Steve	Comm.	Stark, Anne	PAO
Verdon, Charlie	DNT	Waterman, Mitch	SEP			Whalen, Bill	LS	Turteltaub, Brenda	DO
Welty, Rebecca	Eng.	Wenning, Sarah	Bio.			Wheelock, Everett	Eng	Warner, Bruce	NIF
Wong, Howard	SEP	Zevanove, Steve	CFO			Wong, Art	AHRD	Zucca, Jay	NAI

\* TEAM LEADER

### SHARED HOUSING

Livermore - furnished room for rent. Clean/quiet/pool. Close to bus/bike path. No pets/no smoking. \$550.00/month. Share utilities. Deposit. Mature adult. 925-449-1128

Livermore - Unfurnished master bed and bath available now.\$625 per month all utilities incl.laundry,pool spa close to lab. 925-454-9649

San Ramon - room for rent: 4bed/2ba home in a quiet court, phone, TV cable, A/C, and wireless cable modem ready. \$540 plus

utilities. Month-to-month lease. 925-518-4939

### TRUCKS & TRAILERS

1997 - Komfort 24 ft.travel trailer, bunks beds, all amenities and will sleep up to 7 people. Asking \$6800 obo. 209-892-2763

1986 - Ford F250 4X4, 147000 miles 6.9 diesel, many items rebuilt asking 4,200.00 OBO. 925-519-4084

1993 - Chevy 4x4, 2500, w/tow pkg, Fair condition KBB says \$4000, asking \$2900/BO 925-449-6048

B&W companion 5th wheel hitch, used twice, excellent cond. \$550.00 209-532-5224

1996 - Ford Ranger XLT, extra cab, good running, bedliner, cassette. 5,400.00 OBO 510-537-7222

### VACATION RENTALS

Nice modern 4bdrm, 2bath cabin near Calaveras Big Trees on Hwy 4. Great hiking, fishing, boating, lazing. Website. 925-245-1114

Sooo cute beach cottage in Santa Cruz near boat harbor. 2 bedr, 2 bath, spa, fully equipped kitchen. Plan ahead for summer fun. 925-

245-1114

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, comfortably furnished, all amenities,close to all skiing,Reserve Now! Hurry For Skiing/Winter Fun!! 209-599-4644

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

### WANTED

Pachinko (Japanese upright pinball) machine. In need of cleanup/new glass OK, prefer mechanically

complete. 209-832-1038

Old Microwave glass tray, about 10.75 x 15.75 inches or smaller. 925-447-8415

I collect antique; electronics: tape recorders: electronics made with wood, circa 1930 or before. No transistors. I will make offer. 925-443-7729

Wanted: Old stereo equipment, speakers, amps, vacuum tube equip, music equipment. Working or not. 925-443-2954

Used lawnmower and blower in the Modesto area. 209-533-2865



## THE BACK PAGE

### DDLS

*Continued from page 1*

regenerative medicine have successfully healed severe diabetic ulcers within just 11 weeks, as well as aiding a patient with a badly torn Achilles tendon. Nanofibers have been shown to help promote the regeneration of nerve cells.

The field of bioinformatics and robotics is showing great promise. For example, robotic surgery has “a lot to offer in terms of reduced morbidity and mortality,” Pettigrew said. However, surgeons would give up their sense of touch, which is crucial in suturing, for example. This has led to new developments in computer haptics, which provide tactile feedback to the surgeon who is located far from the operating table.

For doctors who perform delicate procedures on site, Pettigrew described a handheld tremor-canceling microsurgical instrument,



JACQUELINE MCBRIDE/NEWSLINE

**Roderic Pettigrew**

which uses sophisticated sensors to counter a surgeon's unintended movements.

Other new techniques combine diagnostic data obtained with an MRI prior to surgery, with computerized imaging during surgery. In one case, Pettigrew described the case of a woman who suffered from severe epilepsy, with as many as 30 seizures a day. “She was a prisoner of her own body,” Pettigrew said, “knowing that she would undoubtedly have a seizure as soon as she left her house.” An image-guided surgical technique, aided by a three-dimensional cross section image of her brain, helped a team of doctors completely eliminate her epilepsy.

Pettigrew encouraged Lab scientists to apply for his institute's research grants if their work could lead to advances in merging quantitative sciences with life sciences. More information is available at: <http://www.nibbl.nih.gov/>

### BLDG. 251

*Continued from page 1*

short-lived isotopes has been decontaminated this successfully. The project also was completed with virtually no safety incidents.

“In my 37 years in the nuclear weapons complex working with both national and international teams, this group has worked together as a team better than any others with which I have been associated,” said Leonard Gray, leader of the Risk Reduction Program for Bldg. 251.

“The Laboratory is proud to hold this up as an example of a project that can be done efficiently, effectively, and most importantly, safely,” said Wayne Shotts, deputy director of Operations. “Everyone on this team is to be congratulated.”

The LLNL Heavy Elements Facility was originally built in eight increments between 1955 and 1981 to provide heavy element nuclear tracers to support nuclear weapons testing and to conduct heavy elements research. Nearly 20 nuclides were discovered using accelerator targets fabricated in the building. A Bldg. 251 prepared californium-249 target contributed to the 1974 discovery of element 106, subsequently named seaborgium (Sg).

“At one time (chemist) Glenn Seaborg was a frequent user of this building,” said Brian Anderson, the Bldg. 251 facility manager.

The facility also developed capabilities to separate and purify exotic isotopes of americium, curium, berkelium, californium and einsteinium, and conducted research on quantitative use of gamma spectroscopy to measure concentrations of fissile isotopes. This work aided the development of safeguards systems for nuclear materials accountability.

But when U.S. underground testing ended in 1992, the building mission diminished. In 1995 the facility moved from operational mode to “standby.”

In March 2002, the Environmental Protection Department took over the management of the building and the Risk Reduction Program (RRP) was established to develop an integrated plan to “de-inventory” the facility to reduce its status from nuclear to radiological. This was important since needed upgrades of more than \$250 million were now necessary to bring the facility into compliance with new requirements. An exemption from these new requirements was granted to LLNL as long as radiological status could be reached by April 10, 2005.

To successfully conduct the RRP, the Heavy Element Facility increased manpower

concurrent with establishing new work processes and new systems. This included training personnel, from technicians to managers, with little or no nuclear experience with high alpha active isotopes in nuclear work techniques and processes required to safely handle these exotic isotopes.

“At that time we had technicians with glove box experience with plutonium, but very few had experience working with the materials in Bldg. 251,” Gray explained. “Most of these isotopes are far more difficult to handle safely than weapons grade plutonium, so it could be a little tricky.”

The Risk Reduction Team was made up of members from Environmental Protection, Hazards Control, Safeguards & Environmental Protection, Chemistry, Plant Engineering and the New Technologies and Engineering Division.

The Bldg. 251 Risk Reduction Program consisted of three components — inventory reduction (reducing the inventory of isotopes stored in underground vaults and safes), glove box removal and ventilation systems removal, operated under a two-year schedule exemption from federal regulation 10CFR830. It was this regulation that led to the Risk Reduction Program. The Laboratory reduced inventory from 865 americium-equivalent curies to .03 curies. Inventory was shipped to Los Alamos and Oak Ridge national laboratories or to LLNL's Bldg. 332, Bldg. 151 and the Radioactive & Hazardous Waste Management Facilities. In addition, 40 glove boxes, 487 waste parcels packaged in 84 transuranic (TRU) waste drums and 38 MDA (Minimal Detectable Activity) waste parcels were removed. More than 110 other items were shipped out as waste.

To reach radiological status, glove boxes had to be emptied of their content, decontaminated, removed, characterized and packaged

“A few of the glove box seals were old enough that they began to leak when we tried to decontaminate,” Gray said. “Instead of risking a major contamination incident in trying to decontaminate one of the boxes to low waste levels, we packaged this as TRU waste. The risk of a major contamination incident was just too high to attempt further decontamination.”

Anderson described the program as a “long, detailed process and there were weeks when some people did not get much sleep” in order to reach targeted milestones.

“Even more important than getting the project done on time was the fact that we did it safely, without a major injury, without a major contamination incident, without a radiation over-exposure or radioactive uptake,” Gray added.

While most of the inventory has been removed and the building has reached its main milestone, key project activities are still scheduled to run through November 2005, with a transition planned to the Space Action Team for demolition and destruction shortly after. Gray said some glove boxes still must be removed — they are being used for further materials inventory reduction — primarily the remaining .03 curies of material. The final end state for the RRP is to reach the “Residual Contamination State” (only radiation sources remaining in the facility are those that exist within the building structure) by September 2006.

“I'm very proud of this team,” said Ellen Raber, department head for Environmental Protection. “Everyone did an outstanding job coordinating between the various groups involved to make sure all deadlines were met. This was enormous amount of work and it should be held up as an example of cooperation.” Raber also thanked DOE and the NNSA site office for their efforts to make this project successful.



Newsline  
UC-LLNL  
PO Box 808, L-797